

We claim:

1. A network interface unit for connecting a service delivery unit to a given medium, the service delivery unit being any one type in a family of different types of service delivery units, each type of service delivery unit in the family providing a network service that is different than the network service provided by the other types of service delivery units in the family, the service delivery unit processing messages received in a first format, the network interface unit comprising:

a medium module configured to process data for transmission between the given medium and the service delivery unit, the medium module transmitting messages toward the service delivery unit in a second format; and

an interface module configured to receive messages transmitted between the medium module and the service delivery unit, the interface module being configured to translate messages from the second format to the first format.

2. The network interface unit as defined by claim 1 wherein the service delivery unit transmits messages in the first format, further wherein the medium module processes messages received in the second format, the interface module also being configured for translating messages from the first format to the second format.

3. The network interface unit as defined by claim 1 wherein all of the different types of service delivery units in the family process data in the first format.

4. The network interface unit as defined by claim 1 wherein only the any one service delivery unit processes data in the first format, the other service delivery unit types in the family processing data in different formats.

5 5. The network interface unit as defined by claim 1 wherein the given medium is a broadband medium implementing at least one of a fiber optic technology, cable technology, or digital subscriber line technology.

6. The network interface unit as defined by claim 1 wherein the network  
10 service may include at least one of telephony, data service, audio service, video service, and Virtual Private network service.

7. The network interface unit as defined by claim 1 further including:  
a connector for electrically and physically connecting to the service  
15 delivery unit, the connector being a single size that corresponds to the size of connectors on each of the types of service delivery units in the family.

8. The network interface unit as defined by claim 1 wherein the medium  
20 module includes a network physical layer and media control module.

9. The network interface unit as defined by claim 1 wherein the network interface unit is physically separated from the service delivery unit.

10. The network interface unit as defined by claim 1 wherein the service  
25 delivery unit and network interface unit together are configured for functioning as data communication equipment for data terminal equipment.

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11. A service delivery unit for providing a network service, the service delivery unit cooperating with a network interface unit to function as data communication equipment to a network for data termination equipment, the network interface unit being any one type of a plurality of different types of network interface units, each type of network interface unit having the connection logic for connecting to a network medium that is different than the network mediums to which the other types of network interface units can connect, the network interface unit processing messages received in a first format, the service delivery unit comprising:
- 10 a network service module that provides the network service, the network service module transmitting messages toward the network interface unit in a second format; and
- an interface module configured for receiving messages transmitted between the network service module and the network interface unit, the interface module being configured to translate messages from the second format to the first format.
12. The service delivery unit as defined by claim 11 wherein the network interface unit transmits messages in the first format, further wherein the network service module processes messages received in the second format, the interface module also being configured to translate messages from the first format to the second format.
13. The service delivery unit as defined by claim 11 wherein all of the types of network interface units process data in the first format.

14. The service delivery unit as defined by claim 11 wherein only the network interface unit processes data in the first format, the other types of network interface units processing data in different formats.

5 15. The service delivery unit as defined by claim 11 wherein the network mediums each are a broadband medium implementing at least one of a fiber optic technology, cable technology, or digital subscriber line technology.

16. The service delivery unit as defined by claim 11 wherein the network  
10 service may include at least one of telephony, data service, audio service, video service, and Virtual Private network service.

17. The service delivery unit as defined by claim 11 further including:  
a connector for electrically and physically connecting to the network  
15 interface unit, the connector being a single size that corresponds to the size of connectors on each of the different types of network interface units.

18. The service delivery unit as defined by claim 11 wherein the network  
service module includes application specific hardware and software for  
20 providing the network service.

19. The service delivery unit as defined by claim 11 wherein the service delivery unit is physically separated from the network interface unit.

25 20. A modular data communication equipment system comprising:  
a family of different types of network interface units, each type of network interface unit having connection logic for connecting to a network medium that

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is different than the connection media to which the other types of network interface units can connect;

a family of different types of service delivery units, each type of service delivery unit providing a network service that is different than the service  
5 provided by the other types of service delivery units,

the network interface units being configured to communicate with at least one service delivery unit via formatted messages; and

an interface configured to convert the format of messages transmitted between any one type of the network interface units and any one type of the  
10 service delivery units.

21. The system as defined by claim 20 wherein the interface is distributed across the network interface units and the service delivery units.

15 22. The system as defined by claim 20 wherein the interface is configured to receive messages that are specific to one of any type of service delivery unit, the interface also being configured to convert the format of the received messages to a format that is specific to one of any type of network interface unit.

20 23. The system as defined by claim 20 wherein the network medium is a broadband medium implementing at least one of fiber optic technology, cable technology, or digital subscriber line technology.

24. The system as defined by claim 20 wherein the network service may  
25 include at least one of telephony, data service, audio service, video service, and Virtual Private network service.

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25. The system as defined by claim 20 wherein each type of network interface unit includes a first connector for electrically and physically connecting to one service delivery unit.

5 26. The system as defined by claim 25 wherein each type of service delivery unit includes a second connector for electrically and physically connecting to the first connector, the first connector being a single size that corresponds to the size of the second connector.

10 27. The system as defined by claim 20 wherein each network interface unit is physically separated from each service delivery unit.

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